

## CONTENTS

### 1 *Inaugural Hirsch Lecture*

- 5 **Origin of microstructure in the 332 K eutectic of the Bi-In-Si system**  
M. Ruggiero and J. W. Rutter
- 12 **Influence of heat treatment on shape memory properties of a Cu-Al-Be alloy containing chromium**  
M. Chen, L.-Z. He, T.-M. Wang, and M.-W. Bai
- 17 **Microstructural evolution and mechanisms of superplasticity in an Al-4.5%Mg alloy**  
F. Li
- 24 **Influence of austenitising temperature on austempering of an Mn-Mo-Cu alloyed ductile iron**  
**Part 2 – Mechanical properties**  
A. S. Hamid Ali and R. Elliott
- 31 **Creep mechanisms in 6246 titanium alloy monitored by stress change testing**  
A. Greasley
- 35 **Bend stiffness and strength of laminates composed of titanium metal matrix composite**  
D. J. Smith, Y. Q. Zuo, P. G. Partridge, and A. Wisbey
- 41 **Microstructural changes induced by dry sliding wear of a A357/SiC metal matrix composite**  
A. J. Leonard, C. Perrin, and W. M. Rainforth
- 49 **Quantitative study of carbonitride precipitation in niobium and titanium microalloyed hot strip steel**  
A. Itman, K. R. Cardoso, and H.-J. Kestenbach
- 56 **Corrosion behaviour of laser melted plasma sprayed coatings on 12% chromium dual phase steel**  
S. C. Tjong, J. S. Ku, and N. J. Ho
- 61 **Extrusion limit diagrams: effect of homogenising conditions and extension to productivity analysis**  
A. Jackson and T. Sheppard

---

### Papers from the conference 'Texture on a microscale'

- 69 **Electron backscatter diffraction and orientation imaging microscopy**  
D. J. Dingley and D. P. Field
- 79 **Methods for determining elastic strains from electron backscatter diffraction and electron channelling patterns**  
A. J. Wilkinson
- 85 **Applications of EBSD to studies of annealing of deformed metals**  
F. J. Humphreys and M. Ferry
- 
- 93 **Influence of particles on recrystallisation textures and microstructures of aluminium alloy 3103**  
H. E. Vatne, O. Engler, and E. Nes
- 103 **Mechanical properties of powder metallurgy duplex stainless steels**  
E. Härmäläinen, A. Laitinen, H. Hänninen, and J. Liimatainen
- 110 **Phase transformations and magnetic properties in cobalt free and low cobalt maraging steels**  
H. Ayub, M. Ahmed, S. W. Husain, F. H. Hashmi, and A. Q. Khan
- 117 **Stepped austempering heat treatment of a 0.67%Mn-Mo-Cu ductile iron**  
H. Bayati and R. Elliott
- 125 **Effect of particle distribution on deformation behaviour of particulate metal matrix composites**  
T.-H. Yip and Z. Wang
- 135 **New approaches for transient liquid phase diffusion bonding of aluminium based metal matrix composites**  
A. A. Shirzadi and E. R. Wallach
- 143 **Lap shear and T peel strength of overlap joints of superplastic 8090 Al-Li sheets bonded by electron beam and laser beam welding**  
S. C. Chen and J. C. Huang
- 156 **Brazing of ZrO<sub>2</sub> toughened Al<sub>2</sub>O<sub>3</sub> to stainless steel**  
T. Torvund, Ø. Grong, O. M. Akselsen, and J. H. Ulvensøen
- 163 **Strengthening of glass rods and bottles with water based epoxy acrylate coatings**  
F. H. Wang, X. M. Chen, B. Ellis, R. J. Hand, and A. B. Seddon
- 173 **Characterisation of AA2618 containing alumina particles**  
I. N. A. Oguocha, Y. Jin, and S. Yannacopoulos

## CONTENTS

### 1 Inaugural Hirsch Lecture

- 5 Origin of microstructure in the 332 K eutectic of the Bi-In-Si system  
M. Ruggiero and J. W. Rutter
- 12 Influence of heat treatment on shape memory properties of a Cu-Al-Be alloy containing chromium  
M. Chen, L.-Z. He, T.-M. Wang, and M.-W. Bai
- 17 Microstructural evolution and mechanisms of superplasticity in an Al-4.5%Mg alloy  
F. Li
- 24 Influence of austenitising temperature on austempering of an Mn-Mo-Cu alloyed ductile iron  
Part 2 – Mechanical properties  
A. S. Hamid Ali and R. Elliott
- 31 Creep mechanisms in 6246 titanium alloy monitored by stress change testing  
A. Greasley
- 35 Bend stiffness and strength of laminates composed of titanium metal matrix composite  
D. J. Smith, Y. Q. Zuo, P. G. Partridge, and A. Wisbey
- 41 Microstructural changes induced by dry sliding wear of a A357/SiC metal matrix composite  
A. J. Leonard, C. Perrin, and W. M. Rainforth
- 49 Quantitative study of carbonitride precipitation in niobium and titanium microalloyed hot strip steel  
A. Itman, K. R. Cardoso, and H.-J. Kestenbach
- 56 Corrosion behaviour of laser melted plasma sprayed coatings on 12% chromium dual phase steel  
S. C. Tjong, J. S. Ku, and N. J. Ho
- 61 Extrusion limit diagrams: effect of homogenising conditions and extension to productivity analysis  
A. Jackson and T. Sheppard

---

### Papers from the conference 'Texture on a microscale'

- 69 Electron backscatter diffraction and orientation imaging microscopy  
D. J. Dingley and D. P. Field
- 79 Methods for determining elastic strains from electron backscatter diffraction and electron channelling patterns  
A. J. Wilkinson
- 85 Applications of EBSD to studies of annealing of deformed metals  
F. J. Humphreys and M. Ferry
- 
- 93 Influence of particles on recrystallisation textures and microstructures of aluminium alloy 3103  
H. E. Vatne, O. Engler, and E. Nes
- 103 Mechanical properties of powder metallurgy duplex stainless steels  
E. Härmäläinen, A. Laitinen, H. Hänninen, and J. Liimatainen
- 110 Phase transformations and magnetic properties in cobalt free and low cobalt maraging steels  
H. Ayub, M. Ahmed, S. W. Husain, F. H. Hashmi, and A. Q. Khan
- 117 Stepped austempering heat treatment of a 0.67%Mn-Mo-Cu ductile iron  
H. Bayati and R. Elliott
- 125 Effect of particle distribution on deformation behaviour of particulate metal matrix composites  
T.-H. Yip and Z. Wang
- 135 New approaches for transient liquid phase diffusion bonding of aluminium based metal matrix composites  
A. A. Shirzadi and E. R. Wallach
- 143 Lap shear and T peel strength of overlap joints of superplastic 8090 Al-Li sheets bonded by electron beam and laser beam welding  
S. C. Chen and J. C. Huang
- 156 Brazing of ZrO<sub>2</sub> toughened Al<sub>2</sub>O<sub>3</sub> to stainless steel  
T. Torvund, Ø. Grong, O. M. Akselsen, and J. H. Ulvensøen
- 163 Strengthening of glass rods and bottles with water based epoxy acrylate coatings  
F. H. Wang, X. M. Chen, B. Ellis, R. J. Hand, and A. B. Seddon
- 173 Characterisation of AA2618 containing alumina particles  
I. N. A. Oguocha, Y. Jin, and S. Yannacopoulos

- 182 Characterisation of interfacial reaction in  $(\text{Al}_2\text{O}_3)_p/6061$  aluminium alloy composite  
J. C. Lee, G. H. Kim, and N. I. Lee
- 187 Effect of temperature in single phase regime on aging response of  $(\text{Al}-2\text{Cu})/\text{SiC}$  metal matrix composite synthesised using disintegrated melt deposition technique  
M. Gupta, M. O. Lai, and S. Ling
- 192 Microstructure and mechanical properties of  $\text{Al}-4.5 \text{ wt-\%Cu}/15 \text{ wt-\%SiC}$  composite prepared using ball mill  
L. Lu, M. O. Lai, and S. H. Yap
- 203 Constitutive equations for use in prediction of flow stress during extrusion of aluminium alloys  
T. Sheppard and A. Jackson
- 210 Constitutive equations for high temperature flow stress of aluminium alloys  
H. Shi, A. J. McLaren, C. M. Sellars, R. Shahani, and R. Bolingbroke
- 217 Solid particle erosion of hard anodised and uncoated 6061-T651 aluminium alloy  
R. G. Rateick, Jr, J. L. Routbort, K. R. Karesk, and K. Elliot
- 223 Influence of heat treatment parameters on stepped austempering of 0.37% Mn-Mo-Cu ductile iron  
A. Nazarboland and R. Elliott
- 233 Microstructure and mechanical properties of a 10%Cr steel with improved creep resistance at 600°C  
L. Lundin, S. Fällman, and H.-O. Andrén
- 243 Hot ductility of an austenitic and a ferritic stainless steel  
B. Mintz, M. Shaker, and D. N. Crowther
- 251 Solidification microstructure and creep rupture behaviour of electron beam welded austenitic Fe-28Mn-6Al-1C alloy  
S. C. Tjong, S. M. Zhu, N. J. Ho, and J. S. Ku
- 257 Dynamics of austenite to ferrite phase transformation in ferrous weld metals  
G. Thewlis, J. A. Whiteman, and D. J. Senogles
- 277 Overview Grain boundary segregation isotherms  
R. D. K. Misra and P. Rama Rao
- 289 Evolution of recrystallisation textures from cold rolling textures in interstitial free steel  
Y. B. Park, D. N. Lee, and G. Gottstein
- 299 Characterisation of pearlitic carbide in 1Cr-0.5Mo steels  
S. D. Mann and B. C. Muddle
- 308 Analytical approach to particle dissolution in a finite medium  
F. J. Vermolen, P. van Mourik, and S. van der Zwaag
- 313 Influence of grain boundary films of martensite on strength and impact behaviour of ferrite  
B. Mintz, A. Nassar, and K. Adejolu
- 319 Role of austenite in promoting ductility in an austempered ductile iron  
H. Bayati and R. Elliott
- 327 High temperature creep resistance of metal matrix composites  
Z. Fan
- 331 Solidification and segregation of Al-Mg alloys and influence of alloy composition on cooling rate  
Y. L. Liu and S. B. Kang
- 337 Stir cast and extruded Al-7Si-0.3Mg alloy containing iron and beryllium  
S. Murali, S. Muthukkaruppan, K. S. Raman, and K. S. S. Murthy
- 343 Thermomechanical processing of welded  $\alpha + \beta$  Ti-Al-Mn alloy and its effect on microstructure and mechanical properties  
K. Keshava Murthy, N. C. Sekhar, and S. Sundaresan
- 349 Wear resistant surfaces on high temperature titanium alloy and titanium aluminide by diffusion bonding  
A. Wisbey and C. M. Ward-Close
- 356 Optimising post-weld heat treatment for alloy 800/(9Cr-1Mo) steel joints using toughness parameters from tensile tests  
A. Bhaduri, S. K. Ray, and P. Rodriguez
- 360 Experimental investigations and modelling of relaxation behaviour of shot peening residual stresses at high temperature for nickel base superalloys  
M. Khadhraoui, W. Cao, L. Castex, and J. Y. Guédou
- 369 Stacking faults of metastable  $\gamma''$  phase precipitated in an Ni-15Cr-8Fe-6Nb alloy  
K. Kusabiraki

- 375 Defects in lattices of  $(\text{Fe}_{1-x}\text{Co}_x)_{17}\text{RE}_2$  compounds (RE = Gd and Tb)  
S. Atiq, R. D. Rawlings, and D. R. F. West
- 379 Importance of deformation induced ferrite and factors which control its formation  
B. Mintz, J. Lewis, and J. J. Jonas
- 389 Work hardening effects in austenitic stainless steels  
D. T. Llewellyn
- 401 New viewpoints and technologies in field of austempering of Fe-C alloys  
A. A. Zhukov, A. Basak, and A. B. Yanchenko
- 408 Effect of silicon content on impact properties of austempered ductile iron  
J. Mallia and M. Grech
- 415 Oxidation behaviour of reaction hot pressed  $\text{MoSi}_2$ -SiC composites at 500°C  
R. Mitra, V. V. Rama Rao, and Y. R. Mahajan
- 420 Structure, fracture toughness, and fatigue of two aluminium matrix composites produced by vertical squeeze casting technique  
F. Felli, A. Brotzu, E. Di Russo, and F. Pinna
- 430 State of residual stress induced by cyclic rolling contact loading  
A. P. Voskamp and E. J. Mittemeijer
- 439 Fracture mechanisms in chip formation processes  
L. Sidjanin and P. Kovac
- 445 Temperature evaluation of cutting tools during machining of hardened bearing steel using polycrystalline cubic boron nitride and ceramic cutting tools  
A. M. Abrão and D. K. Aspinwall
- 453 Magnetic diamond fibres  
P. G. Partridge, G. Nabyouni, W. Schwarzacher, J. A. Nicholson, E. D. Nicholson, S. Bleay, and C. Gilmore
- 459 Isothermal hot deformation behaviour of  $(\alpha + \beta)$  titanium alloy Ti-4Al-4Mo-2Sn-0.5Si (IMI 550)  
D. G. Robertson and H. B. McShane
- 469 Influence of carbon content on transformation behaviour of austenite in 9Cr-1Mo steels  
S. Saroja, M. Vijayalakshmi, and V. S. Raghunathan
- 477 Effect of solidification microstructure on strength and ductility of powder metallurgical 2024-3Fe-5Ni aluminium alloy  
K. Matsuki, S. Xiang, T. Kimoto, M. Tokizawa, T. Yokote, J. Kusui, and K. Fujii
- 484 Electrical transport properties of thin films of  $\alpha\text{-Se}_{100-x}\text{Ga}_{20}\text{Bi}_x$   
Zishan H. Khan, M. Zulfequar, M. Manzar Malik, and M. Husain
- 489 Influence of heat treatments on microstructure and mechanical properties of Cu-15Ni-8Sn prepared by spray forming  
Ph. Hermann, C. Biselli, and D. G. Morris
- 497 Effect of calcium on mechanical properties of recycled aluminium casting alloys  
T. Kobayashi, H. J. Kim, and M. Niinomi
- 503 Fusion zone microstructure and fatigue crack growth behaviour in Ti-6Al-4V alloy weldments  
K. Keshava Murthy, N. B. Potluri, and S. Sundaresan
- 511 Aluminium composite coatings produced by plasma transferred arc surfacing technique  
R. L. Deuis, J. M. Yellup, and C. Subramanian
- 523 Effect of aging on work hardening behaviour of SiC reinforced aluminium metal matrix composite  
M. Gupta and M. Manoharan
- 526 Surface modifications on Fe-40 at.-%Al intermetallic alloy by excimer laser melting treatment  
S. Frangini, F. Pierdominici, J. Lascovich, S. Tosto, and P. Di Lazzaro
- 533 *Short Communication* Origins of anomalous output of magnesium sensor  
J. W. Fergus, S. Hui, W. F. Gale, and Z. A. M. Abdo
- 541 Origin of microstructure in Bi-Pb and Bi-Sn binary eutectics  
S. D. Bagheri and J. W. Rutter
- 551 Diamond fibre microheaters  
P. G. Partridge, G. Meaden, E. D. Nicholson, J. A. Nicholson, and M. N. R. Ashfold
- 555 Modification of  $\theta$  projection creep law by introducing mean stress term  
B. Ule, T. Rodič, and T. Šuštar
- 560 Influence of nitrogen and grain size on deformation behaviour of austenitic stainless steels  
M. Nyström, U. Lindstedt, B. Karlsson, and J.-O. Nilsson

- 568 Effects of silicon, nickel, and vanadium on impact toughness in spring steels  
W.-J. Nam and H.-C. Choi
- 575 Isothermal hot deformation behaviour of metastable  $\beta$  titanium alloy Ti-10V-2Fe-3Al  
D. G. Robertson and H. B. McShane
- 584 Processing, microstructure, and mechanical properties of (Al-Cu)/C composites synthesised using partial liquid phase casting process  
M. Gupta, S. C. Lim, and W. B. Ng
- 590 Fabrication, microstructure, and tensile properties of magnesium alloy AZ91/SiC<sub>p</sub> composites produced by powder metallurgy  
D. M. Lee, B. K. Suh, B. G. Kim, J. S. Lee, and C. H. Lee
- 596 Continuous casting process for application of thick aluminium alloy jacket over optical fibre  
H. Soda, W. Li, A. McLean, C. K. Jen, G. Motoyasu, and O. Lisbõa
- 600 Near net shape processing of metal and ceramic composite ingot mould  
G. Shi, P. Ding, J. Tang, S. Zhou, Y. Zhang, and T. Yu
- 604 Microstructure-property relations of Mo- and W-alloyed super duplex stainless steel weld metals  
S. Hertzman, T. Huhtala, L. Karlsson, J.-O. Nilsson, M. Nilsson, R. Jargelius-Pettersson, and A. Wilson
- 614 Evaluation of post-weld heat treatment in 2-25Cr-1Mo steel tube to tube sheet welded joints using magnetic Barkhausen noise measurements  
V. Moorthy, S. Vaidyanathan, T. Jayakumar, and Baldev Raj
- 618 *Short Communication* Aging martensite above  $A_1$  temperature  
J. Iqbal, A. Tauqir, F. H. Hashmi, and A. Q. Khan
- 625 Some physical properties of Mg-Zn ferrites  
M. A. El Hiti, A. I. El Shora, and S. M. Hammad
- 631 Modelling precipitation sequences in power plant steels Part 1 - Kinetic theory  
J. D. Robson and H. K. D. H. Bhadeshia
- 640 Modelling precipitation sequences in power plant steels Part 2 - Application of kinetic theory  
J. D. Robson and H. K. D. H. Bhadeshia
- 645 Statistical aspects of cleavage resistance of high strength microalloyed structural steels  
M. Capurro, P. Brozzo, and P. Cirillo
- 650 Effects of solutes on grain refinement of selected wrought aluminium alloys  
M. A. Kearns and P. S. Cooper
- 655 Formation and characteristics of coarsening resistant cubic sigma phase in Al-4.2Cu-1.6Mg-0.2Si  
S. C. Barr, L. M. Rylands, H. Jones, and W. M. Rainforth
- 660 Lüders elongation in Al-Mg alloy AA5182  
D. J. Lloyd, S. A. Court, and K. M. Gatenby
- 667 Static and cyclic creep behaviour of 2024/SiC<sub>p</sub> and its matrix alloy at high temperature  
P. L. Liu, Z. G. Wang, and W. L. Wang
- 673 Mechanical properties of titanium-5083 aluminium alloy friction joints  
A. Fuji, M. Kimura, T. H. North, K. Ameyama, and M. Aki
- 679 Evaluation of friction weld interface of aluminium to austenitic stainless steel joint  
S. Fukumoto, T. Inuki, H. Tsubakino, K. Okita, M. Aritoshi, and T. Tomita
- 687 Wear performance of Al-Fe-V-Si particle reinforced cast aluminium alloy composites  
C.-C. Yang, W.-M. Hsu, and E. Chang
- 695 Preparation of ( $\gamma + \alpha_2$ ) type TiAl intermetallics from elemental powders by solid state hot pressing  
J. B. Yang, K. W. Teoh, and W. S. Hwang
- 702 *Short Communication* Mould surface roughness and interfacial heat transfer using heat flow model  
A. M. Assar
- 709 *Review* Structural performance of discontinuous metal matrix composites  
I. Sinclair and P. J. Gregson
- 727 Influence of  $\alpha'$  martensite on shape memory effect in Fe-14Mn-5Si-9Cr-5Ni alloy  
C.-L. Li, X.-P. Ma, and Z.-H. Jin
- 731 Dispersion hardening by niobium carbonitride precipitation in ferrite  
H.-J. Kestenbach
- 740 Towards virtual heat treatment of alloys  
Z.-K. Liu and M. Schalin



- 749 Effect of spatial distribution of graphite and matrix on dry sliding wear of cast irons  
S. Y. Buni, N. Raman, and S. Seshan
- 755 Unstable flow during hot deformation of Ti-24Al-20Nb alloy  
P. K. Sagar, D. Banerjee, and Y. V. R. K. Prasad
- 761 Microstructural changes occurring during superplastic deformation of Ti-6Al-6V-2Sn alloy  
S. C. Lin and W. H. Wang
- 769 Role of zirconium and impurities in grain refinement of aluminium with Al-Ti-B  
A. Arjuna Rao, B. S. Murty, and M. Chakraborty
- 778 Interfacial behaviour of 6061/Al<sub>2</sub>O<sub>3</sub> metal matrix composites  
T. Das, P. Munroe, S. Bandyopadhyay, T. Bell, and M. V. Swain
- 785 Intelligent design of gating channels for casting  
B. Ravi
- 791 Measurement of surface tension of liquid metals and alloys under arc welding conditions  
Y. H. Xiao and G. den Ouden
- 797 Role of nucleation in phase competition in binary Ti-Al alloys  
G. Shao, P. Tsakirooulos, and A. P. Miodownik
- 806 Atom probe analysis of initial decomposition of Fe-N martensite  
M. J. van Genderen, S. J. Sijbrandij, A. Böttger, E. J. Mittemeijer, and G. D. W. Smith
- 813 Microsegregation of manganese and silicon in high manganese ductile iron  
A. Owghadi, J. Hedjazi, P. Davami, M. Fazli, and J. M. Shabestari
- 818 Modelling of high temperature viscoplastic flow of aluminium alloys by hot torsion testing  
M. Zhou and M. P. Clode
- 825 Experimental investigation of superplastic behaviour in magnesium alloys  
M. Mabuchi, T. Asahina, H. Iwasaki, and K. Higashi
- 832 Analysis of coating layer formed on steel strips during aluminising by hot dipping in Al-Si baths  
N. A. El-Mahallawy, M. A. Taha, M. A. Shady, A. R. El-Sissi, A. N. Attia, and W. Reif
- 841 Mould filling characteristics in lost foam casting process  
X. Yao and S. Shivkumar
- 847 Mechanical and corrosion behaviour of powder metallurgy stainless steel based metal matrix composites  
F. Velasco, N. Antón, J. M. Torralba, and J. M. Ruiz-Prieto
- 852 Investigation of cyclic thermal shock behaviour of fibre reinforced glass matrix composites using non-destructive forced resonance technique  
A. R. Boccaccini, D. H. Pearce, J. Janczak, W. Beier, and C. B. Ponton
- 859 Decomposition kinetics of machining oil and oxidation of A356.2 aluminium alloy in aluminium recycling process  
S. C. Lim, D. H. Kim, J. S. Kim, C. H. Lee, and E. P. Yoon
- 865 Chlorination process applied to zirconium recovery from Zircaloy shavings  
A. E. Bohé, J. J. Andrade Gamboa, and D. M. Pasquevich
- 872 *Short Communication* Hot ductility of an electrosag crucible melted age hardenable Cu-Cr alloy  
V. V. Satya Prasad, R. D. K. Misra, V. Ramakrishna Rao, P. Krishna Rao, and K. M. Gupta
- 877 Interfacial segregation of competitive impurities in embrittled and de-embrittled Fe-3%Ni  
A. V. Krajinik, M. Militzer, and J. Wieting
- 887 Novel synthesis of MoSi<sub>2</sub> and MoSi<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> ultrafine powders  
C. C. Yu, V. Jagasivamani, R. Kumar, and T. S. Sudarshan
- 893 Molecular dynamics simulations of ion bombardment processes  
L. A. Marqués, M. Jaraíz, J. E. Rubio, J. Vicente, L. A. Bailón, and J. Barbolla
- 897 Process model for two step age hardening of 7475 aluminium alloy  
W. J. Poole, H. R. Shercliff, and T. Castillo
- 905 Effect of natural aging and preaging on subsequent precipitation process of Al-Mg-Si alloy with high excess silicon  
L. Zhen, S. B. Kang, and H. W. Kim
- 912 Formation of MgAl<sub>2</sub>O<sub>4</sub> at interface between a squeeze cast piston alloy and Saffil fibre reinforcement  
A. Papworth and P. Fox
- 918 Effect of interfacial reaction on fracture behaviour of aluminium borate whisker reinforced aluminium composite  
W. D. Fei, X. D. Jiang, C. Li, and C. K. Yao

- 923 Superplastic behaviour of powder metallurgy 1.3%C-1.6%Cr-0.8%B steel  
P. Acosta, J. A. Jiménez, G. Frommeyer, and O. A. Ruano
- 928 Dry sliding wear response of zinc based alloy: influence of heat treatment, sliding speed, and pressure  
B. K. Prasad
- 937 Mass transfer and morphological changes in AISI 316 stainless steel in high temperature flowing sodium  
S. Rajendran Pillai, H. S. Khatak, J. B. Gnanamoorthy, S. Velmurugan, A. K. Tyagi, R. D. Kale, K. Swaminathan, M. Rajan, and K. K. Rajan

## Papers from the '1st International Conference on Materials for Microelectronics'

### SESSION A7: DEFECTS IN COMPOUND SEMICONDUCTORS

- 945 Electronic properties of defects introduced in GaAs during sputter deposition of gold Schottky contacts  
F. D. Auret, S. A. Goodman, Y. Leclerc, G. Myburg, and C. Schutte
- 949 Optical and electrical non-uniformity around dislocations in silicon doped GaAs  
M. Tajima, R. Toba, N. Ishida, and M. Warashina
- 954 Neutron transmutation doping of III-VI layered semiconductors  
B. Mari, R. Fenollosa, F. J. Manjón, R. Clemente, V. Muñoz, and A. Segura
- 957 Anisotropic distribution of crystalline defects along [011] and  $[0\bar{1}\bar{1}]$  directions in  $\text{In}_{0.52}\text{Al}_{0.48}\text{As}$  buffer layers grown on InP  
F. Peiró, A. Cornet, and J. R. Morante

### SESSION B1: OPTICAL CHARACTERISATION

- 961 Photoreflectance characterisation of  $\text{Ar}^+$  ion etched and  $\text{SiCl}_4$  reactive ion etched silicon (100)  
M. Murtagh, S. M. Lynch, P. V. Kelly, S. Hildebrandt, P. A. F. Herbert, C. Jeynes, and G. M. Crean

### SESSION B7: CHARACTERISATION OF STRUCTURES AND DEVICES

- 965 Porous silicon for microelectronics and optoelectronics  
R. Hérino
- 971 Deep trap characterisation and conduction band offset determination of  $\text{Al}_{0.48}\text{In}_{0.52}\text{As}/(\text{Ga}_{0.7}\text{Al}_{0.3})_{0.48}\text{In}_{0.52}\text{As}$  heterostructures  
F. Ducroquet, G. Jacovetti, K. Rezzoug, S. Ababou, G. Guillot, J. P. Praseuth, F. Olivier-Martin, and L. Giraudet

- 977 Review Structuring of particles in concentrated pastes: a source of defects in powder processed materials  
K. Kendall
- 982 Effects of process parameters on properties of aluminium/stainless steel fibre metal matrix composites made by diffusion bonding  
Y.-H. Hwang, C.-F. Horng, S.-J. Liu and M.-T. Jahn
- 989 Carbide morphology in bulk and unidirectionally solidified Fe-C-V eutectics  
E. Fras, E. Guzik, W. Kapturkiewicz and H. F. Lopez
- 997 Influence of tempering on impact behaviour of quenched and tempered steels with low hardenability  
H. Mehrabi and B. Mintz
- 1007 Use of austenitising temperature in control of austempering of an Mn-Mo-Cu alloyed ductile iron  
R. Kazerooni, A. Nazerboland and R. Elliot
- 1016 Influence of nitrogen on mechanical properties of nitrogen supersaturated austenitic stainless steel  
M. F. Shehata, S. Schwarz, H.-J. Engelmann and M. Uhlemann
- 1023 Cyclic deformation behaviour of ferritic Fe-19Cr-4Ni-2Al alloy at elevated temperatures  
S. M. Zhu and S. C. Tjong
- 1027 High performance stainless steel via powder metallurgy hot isostatic pressing  
G. Appa Rao and M. Kumar
- 1033 Thin section size and grain size dependent Monkman-Grant ductility of a nickel base superalloy  
A. Baldan
- 1039 High strain rate superplastic flow stress and post-deformation mechanical properties of mechanically alloyed 2024 aluminium alloy reinforced with SiC particles  
K. Matsuki, H. Kawakami, M. Tokizawa and S. Murakami
- 1045 Effect of surface finish and sheet thickness on isostatic diffusion bonding of superplastic Ti-6Al-4V  
M. F. Islam, J. Pilling and N. Ridley
- 1051 Evolution of nickel borides in Ni-Si-B brazed joints of nickel during post-braze heat treatment  
S. K. Tung, L. C. Lim, M. O. Lai and H. Wu

1057 Comparative study on impact toughness of gas tungsten arc and electron beam weld metals of Ti-6Al-4V  
C. H. Radhakrishna and K. Prasad Rao

1063 *Short Communication* Fatigue crack propagation in maraging steel  
K. Hussain, A. Tauqir, A. ul Haq and A. Q. Khan

#### **Book reviews**

pages 537, 621, 705, 974, 1066

#### **Conference diary**

pages 91, 171, 275, 368, 451, 539, 623, 707, 795, 875, 975, 1067



